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| 09/764,311      | 01/19/2001  | Cheol Hong Min       | P-182               | 6770             |

7590 06/04/2004

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| EXAMINER |
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SENGI, BEHROOZ M

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| ART UNIT | PAPER NUMBER |
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2613

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DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/764,311

Applicant(s)

MIN, CHEOL HONG

Examiner

Behrooz Senfi

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-28 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Applicant's arguments, see (paper no. 7, filed March 22, 2004, page 14, lines 10 - 14), with respect to claim 8 have been fully considered and are persuasive. Therefore objection of claim 8 has been withdrawn.

Applicant's arguments (paper no. 7, filed March 22, 2004, page 15, lines 7 – page 16, lines 5) with respect to claims 1 and 10 have been considered but are moot in view of the new ground(s) of rejection.

Applicant amends (paper no. 7, filed March 22, 2004) claims 1 – 5, 7 – 8, 10 – 11 and 14, and added new claims 20 – 28.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 21 and 25 is rejected under 35 U.S.C. 102(b) as being anticipated by Haskell et al (US 5,001,561).

Regarding claim 21, Haskell '561 discloses “an image processing, which divides the received image data into high and low frequency” (i.e. fig. 1, separator 108), and “allocating predetermined bits to the high and low frequency component and coding the high frequency component independently from the low frequency component to generate compressed image data” (i.e. fig. 1, 110, 118, abstract).

Regarding claim 25, Haskell '561 discloses the claimed "storage" (i.e. fig. 1, abstract, lines 1 – 4).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 – 8 and 10 - 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang et al (US 6,160,846).

Regarding claim 1, Chiang '846 teaches, "motion compensation adaptive image Processing, which process an image data received from a external source, stores the ..... " (i.e. fig. 6, 604), comprising: "dividing the received image data to high and low frequency" (i.e. fig. 8, DWT), which separates the received image data to high and low frequency, and "compressing/coding the image data having the relatively high frequency and relatively low frequency component by allocating predetermined bits, the compressing/coding including coding the relatively high frequency component independently from relatively low frequency component" (i.e. fig. 8, col. 7, lines 60 – col. 8, lines 8), which teaches that high frequency and low frequency components are independently coded. By adjusting the quantization value for each of the high/low frequency component, predetermined bits are allocated for each of the frequency components, and "decoding the coded image data" (i.e. fig. 6, DWT decoder 612).

Regarding claim 2, Chiang '846 teaches, "wavelet transform" (i.e. fig. 6, DWT).

Regarding claims 3 – 4, and 6, Chiang '846 teaches, "wherein the image data having relatively low frequency component is divided repeatedly into image data having relatively higher frequency ..... " (col. 16, lines 21+), and "high pass and low pass filtering" (i.e. fig. 7, col. 16, lines 30+), and "the step of storing ..... " (col. 8, lines 5+).

Regarding claim 7, Chiang '846 teaches, the claimed "repeatedly performing the decoding, ....." (fig. 6, decoding loop).

Regarding claims 10 - 11, the limitations claimed are substantially similar to claims 1 and 4, and are the apparatus of the method of claim 1, therefore the grounds for rejecting claim 1 also applies here, and the "filtering unit for filtering the image data ....." reads on (fig. 7, of Chiang and figs. 1 and 4, of incorporated reference Shapiro "US 5,412,741" by Chiang '846).

Regarding claims 5, 8, 14 and 16, the limitations claimed "a first code corresponding to a lower value of the relatively low frequency component and a second code obtained by coding a result of subtracting the lower value from a higher value of the relatively low frequency component, in claim 5", and "outputting a first representative value from a coding table corresponding to a higher value of the relatively low frequency component and a second representative value from a coding table corresponding to the relatively high frequency component, in claim 8", and "wherein the low frequency coding unit outputs a first code corresponding to a first low frequency component and a second code corresponding to a value indexing a result of subtracting the first low frequency component from a second low frequency component ..... in claims 14 and 16" reads on (col. 3, lines 61 – col. 4, lines 41 of Shapiro '741 reference incorporated by Chiang).

Regarding claims 12 – 13, and 18 - 20, the claimed coding table, which indexes the image data .....” reads on (col. 3, lines 53 – col. 4, lines 10, and fig. 6 of Shapiro ‘741, incorporated reference by Chiang ‘846), and “mapping, and filtering .....” (fig. 3, filter means, col. 4, lines 1 – 20).

Regarding claim 15, Chiang ‘846 teaches, the claimed “filtering ..... and decoding .....”, (i.e. fig. 6 and 7, decoder 612).

Regarding claim 17, Chiang ‘846 teaches, the claimed “variable length coding and de-quantizing and inverse transform unit and motion compensation information .....” (i.e. fig. 8, entropy coder/variable length coder 806 and quantizer 804, and the inverse process 612).

6. Claims 22 – 24 and 26 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haskell ‘561 in view of Chiang ‘846.

Regarding claim 23, Haskell ‘561 teaches “an image processing, which divides the received image data into high and low frequency and coding the high frequency component independently from the low frequency component to” (i.e. fig. 1, separator 108, abstract). Haskell ‘561 fails to explicitly teach, “coding table corresponding to high frequency band compression .....”. However the above claim limitations are well known and used as evidenced by Chiang ‘846 (i.e. col. 16, lines 21+), and (col. 3, lines 63 – col. 4, lines 40 of the incorporated reference, Shapiro). Therefore it would have been obvious to one skilled in the art to modify the encoding system of Haskell as taught by Chiang, which recursively adjusts the quantizer scale to maintain the overall quality of the video image while optimizing the coding rate (i.e. col. 4, lines 29 – 32 of Chiang).

Regarding claims 22, and 24, combinations of Haskell '561 and Chiang '846 teaches the claimed "using different coding tables to code the high and low frequency component" and the "coding table" (i.e. col. 3, lines 53 – col. 4, lines 10, and fig. 6 of Shapiro).

Regarding claims 26 – 28, combination of Haskell '561 and Chiang '846 teaches, "decoding the compressed image data ....." (i.e. fig. 2 of Haskell and fig. 8, 612 of Chiang).

#### Allowable Subject Matter

7. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is an examiner's statement of reasons for allowance: the prior art of the record fails to anticipate or rendered obvious the novelty point of the "step of compressing/coding the image data of sub-blocks (4x1 pel, 32 bits) as 24 bits data by coding the image data as following; dividing the sub-blocks into two image data having high frequency components and low frequency components by wavelet transform, then coding two image data having two high frequency components by allocating five bits, respectively; and coding the first one of the two image data having the low frequency components as eight bits data; and coding the second one of the two image data having the low frequency components as six bits data" as claimed.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Behrooz Senfi** whose telephone number is **(703)305-0132**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Chris Kelley** can be reached on **(703)305-4856**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231



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**Or faxed to:**


**(703) 872-9314**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relative to the status of the application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

B. S. B. J.

5/25/2004

  
GIMS PHILIPPE  
PRIMARY EXAMINER